PRODUCT SUPPORT MANUAL

Y1-03-0169
Rev. A

406 PLB

Product No. 2792

GyPSI™ 406 PLB

(with GPS Interface)

Product No. 2793

Model **PLB**-100

Personal Locator Beacon

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A ***Chelton Group*** company

*** * * WARNING * * ***

THIS TRANSMITTER IS AUTHORIZED FOR USE ONLY

DURING SITUATIONS OF GRAVE AND IMMINENT DANGER

DELIBERATE MISUSE MAY RESULT IN A SEVERE PENALTY

Advice to owners of Personal Locator Beacons (PLBs)

Registration of 406 MHz satellite **PLB** with the **PLB** Registration Section of the *national authority** **is mandatory** because of the global alerting nature of the system.

The information provided in the Registration Card is used only for rescue purposes and will greatly assist in any beacon alarm incident.

Fill in the owner registration card immediately upon completion of the sales transaction. Mail the Registration Card immediately.

If the beacon is to enter service immediately, complete the Registration Card and fax the information to the national authority. The original card must still be mailed to the *national authority** for hard-copy reference and filing.

If the current owner is transferring the beacon to a new owner, the current owner is required to inform the *national authority** by letter, facsimile or telephone, of the name and address of the new owner.

The subsequent owner of the beacon is required to provide the *national authority** with the information as shown on the owner Registration Card. Additional Registration Cards may be obtained by contacting ACR or the appropriate national authority.

THIS OBLIGATION TRANSFERS TO ALL SUBSEQUENT OWNERS.

**National Authority*

*The term "national authority" appears throughout this manual. Wherever these words appear, reference is made to the government body responsible for **PLB** registration for the country in which the unit is registered. The addresses for various national authorities can be found on the Registration Card.*

The National authority in the United States is the national oceanic and atmospheric administration.

The address is:

SARSAT Beacon Registration
NOAA/NESDIS
E/SP3, Rm 3320, FB-4
5200 Auth Road
Suitland, Md 20746-4304
www.sarsat.noaa.gov

Tel No. (301) 457-5430
Fax No. (301) 568-8649

The national authority in Canada is the NSS (National Search & Rescue Secretariat)
Canadian personal emergency beacon registry.
The NSS Telephone Number is:

(613) 996-1504
(800) 727-9414

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SECTION 1 - THE SYSTEM

1.1 GENERAL

1.1.1 This manual provides operation and maintenance instructions for the 406 Personal Locator Beacon, Product No. 2792 and the GyPSI™ 406 Personal Locator Beacon, Product No. 2793 hereinafter referred to as the **PLB**. This section describes the characteristics and details of the 406 **PLB** and GyPSI™ 406 **PLB** Systems.

1.2 PURPOSE

1.2.1 The **PLB** provides distress alerting via radio transmission on 406 MHz to satellites of the COSPAS-SARSAT network. The GyPSI™ **PLB** can also transmit a distress alert to the GEOSAR network that includes GPS latitude and longitude coordinates that are inputted through an I/R Interface that connects to the data output of a GPS Receiver.

1.2.2 The message transmitted by the **PLB** is unique for each beacon, which provides identification of the transmitter through computer access of registration files maintained by the National Search and Rescue Secretariat or other national authority. **It is the user's responsibility to fill out and mail the enclosed registration form to the appropriate agency of the country under which the PLB is registered.** The **PLB** is programmed by ACR during manufacture and can be reprogrammed by an ACR authorized programming facility for the registered country. **Remember**, if your **PLB** is **not registered**, SAR Authorities do not know who you are, where you live or where to contact anyone who might know anything about your situation.

1.2.3 Once Search and Rescue (SAR) forces are alerted by the **PLB** signal (406 MHz), relayed through the COSPAS-SARSAT and/or GEOSAR network, they can converge on the position estimated by the satellite. When GyPSI™ **PLB** GPS interface is used SAR authorities can know your precise location and speed up reaction time. Intermediate and short range location is aided by the **PLB** with its on board radio beacon homing signal transmitter (121.5 MHz).

1.2.4 Power is provided by a self contained long life battery pack with a recommended 5 year replacement cycle. *See Factory Authorized Service Center for replacement (Section 4.0 – Maintenance).*

1.2.5 Self test (Section 2.5) is initiated by momentarily moving the switch to the test position then release. During self test, an actual satellite message is transmitted while certain key performance parameters are measured and recorded. The self test message is modified such that the satellite will not forward an alert message during self test. The LED will flash 3 times amber before turning **green**. During this time the unit will also beep 3 times to indicate correct test status. In the GyPSI™ **PLB** model, approximately 2 seconds after self test the unit will beep and amber LED will flash to indicate if the unit has GPS data.

1.3 SATELLITE DETECTION

1.3.1 The 406 **PLB** and GyPSI™ 406 **PLB** transmit an encoded phase modulated radio signal to the satellite portion of the COSPAS-SARSAT System. The system was developed and implemented by the COSPAS-SARSAT Partners (Russian Federation, Canada, France and the United States).

1.3.2 COSPAS-SARSAT is an international system that uses Russian Federation and United States low altitude, near-polar orbiting satellites that assist in detecting and locating activated 121.5/243 MHz and 406 MHz Satellite beacons. The Russian Federation provides aboard COSMOS navigation spacecraft COSPAS payloads that are inter-operable with the SARSAT System. In addition to weather and environmental sensors, SARSAT payloads, provided by Canada and France, are carried aboard the United States National Oceanic and Atmospheric Administration's (NOAA's) Advanced TIROS environmental satellites.

1.3.3 COSPAS and SARSAT satellites receive distress signals from the 406 **PLB** and GyPSI™ 406 **PLB** transmitting on the frequency of 406.028 MHz. The COSPAS-SARSAT 406 MHz satellite signal consists of a transmission of non-modulated carrier followed by a digital message format that provides identification data. The 406 MHz system uses spacecraft-borne equipment to measure and store the Doppler-shifted frequency data along with the satellite digital data message including GPS data, and time of measurement. This information is transmitted in real time to an earth station called the Local User Terminal (LUT), which may be within the view of the satellite, as well as being stored for later transmission to other LUTs. In the real-time mode, the signal detection is limited to a mutual satellite-LUT circular visibility area of about 2500 km radius that moves with the satellite along its track. However, because of the stored-mode capability at 406 MHz, the need for this mutual **PLB**-satellite-LUT visibility is not essential, and the system is fully functional in just the global mode.

1.3.4 The LUT processes the Doppler-shifted signal and determines the location of the **PLB**; then the LUT relays the position of the distress signal to a Mission Control Center (MCC) where the distress alert and GPS location information is immediately forwarded to an appropriate Rescue Coordination Center (RCC). The RCC dispatches Search and Rescue (SAR) forces.

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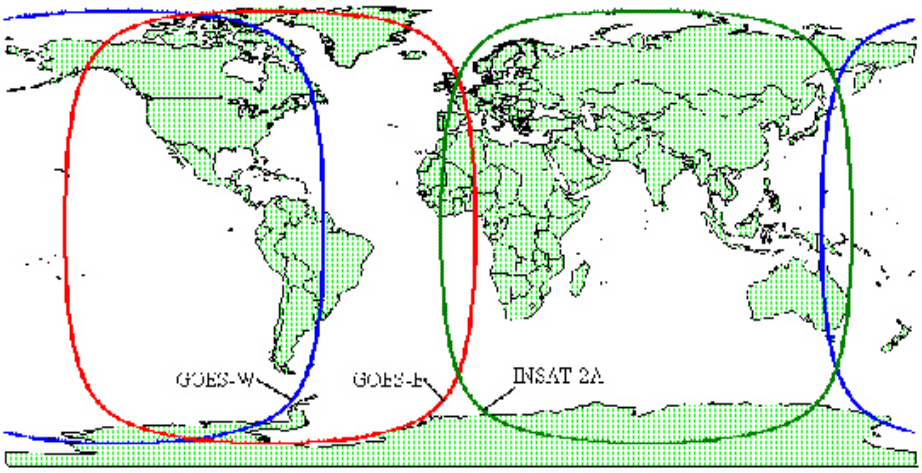
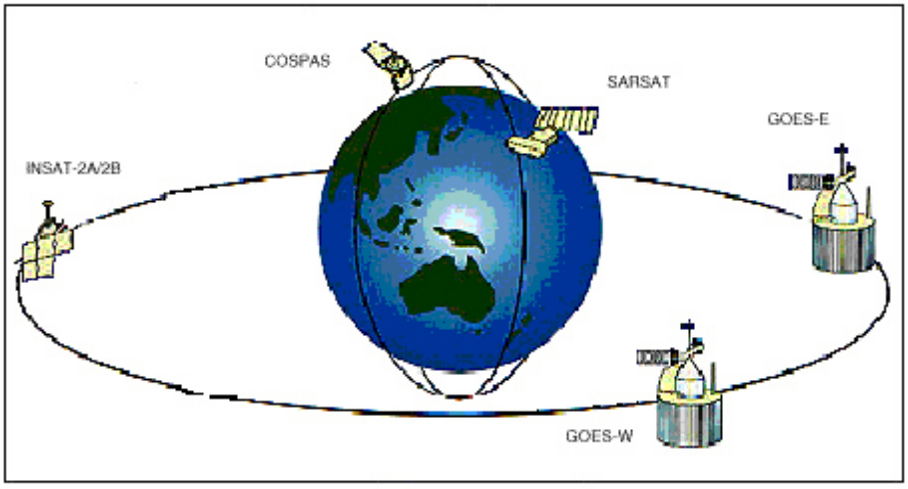
1.3.5 The COSPAS-SARSAT System includes 38 LEOSAR LUT Stations, 9 GEOSAR LUT stations and 24 Mission Control Centers that provide real-time as well as global-mode coverage for the northern hemisphere, while the southern hemisphere is presently served primarily by the global-mode. Additional LUTs and MCCs are planned for installation in the near future both in the northern and southern hemispheres.

The addition of the GEOSAR Satellite system greatly improves the reaction time for a SAR event. This satellite system has no Doppler capabilities at 406 but will relay the distress alert to any of the LUT stations. When there is GPS data included in the distress message this will instantly tell SAR authorities where you are located, hence by not having to await the transit of the next LEOSAR satellite.



GEOSAR SATELLITE COVERAGE
FIGURE 1



SAR SATELLITE ORBITS
FIGURE 2

1.3.6 Because most of the search and rescue forces presently are not equipped to home on the 406 MHz Satellite signal, homing must be accomplished at 121.5 MHz.

1.3.7 The 406 **PLB** and GyPSI™ 406 **PLB** are Class 1, Personal Locator Beacons.

1.4 AUTHORIZATIONS

1.4.1 The 406 **PLB** and GyPSI™ **PLB** meets the requirements of FCC Part 95 Subpart K.

The 406 **PLB** and GyPSI™ 406 **PLB** meets the requirements of and Canadian Specifications, NSS PLB 01-01 & RSS 187 and Cospas/Sarsat T.001 & T.007.

1.5 CHARACTERISTICS

1.5.1 The 406 **PLB** and GyPSI™ 406 **PLB** are buoyant, battery operated Personal Locator Beacons. The beacon case, with its external antenna, is waterproof. The semiconductor circuits are mounted within the case assembly that also contains the battery power supply. An "On/Off" switch is installed on top of the beacon, along with an internal beeper. The GyPSI™ model accepts external GPS data via an I/R interface cable that is included with your **PLB**.

1.6 TECHNICAL DATA

1.6.1 Applicable Documents

NSS PLB01-01	Standard for 406 MHz Satellite PLB's, Canada
COSPAS-SARSAT	Document C/S T.001 & T.007 (spec for 406 MHz distress beacons)
RSS 187	Radio Standards Specification for Emergency Position Indicating Radio Beacons, Emergency Locator Transmitter, and Personal Locator Beacon
FCC	Part 95, Subpart K

1.6.2 Specifications

<u>406 MHz Transmitter</u>	
Frequency	406 MHz
Frequency Stability	±2 parts per billion/100ms
Output Power	5 watts
Digital Message Format	
Long message / serialized	
Message protocol	Standard Location (2790) National Location (2790.6)
Duration	520 ms
Rate	400 bps
Encoding	Biphase L
Modulation	±1.1 radians peak

PLB's leave ACR with Serialized code but can be reprogrammed at a service center to other coded formats including nationality of registration.

121.5 MHz Transmitter

Frequency	121.5 MHz
Frequency Tolerance	±50 ppm
Output Power	25 mW PEP
Morse Code "P" ID	every 50 seconds (approximately)

Modulation

Type	AM (3K20A3N)
Sweep Range	400 to 1200 Hz
Sweep Rate	3 Hz
Duty Cycle	37.5%
Morse P	AM (2K00A2A)

Antenna

Frequency	406 & 121.500 MHz
Polarization	Vertical
VSWR	Less than 1.5/1

General/Environmental

Battery Life

Operating	24 hours minimum @ -40°C
Replacement Interval	5 years

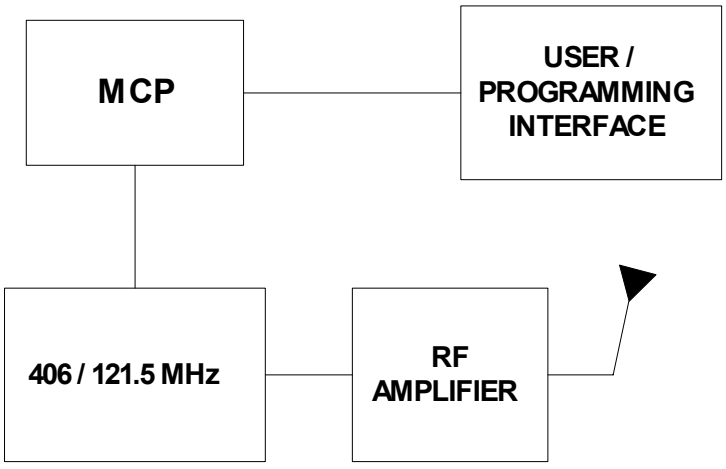
Size

PLB less Antenna	6.65 x 3.55 inches

Material	High impact and UV resistant plastic
Color	High Visibility Yellow
Weight	514 grams

Temperature Range

Operating	Class I	-40°C to +55°C



PLB BLOCK DIAGRAM
FIGURE 3

KNOWN COMPATIBLE GPS RECEIVERS
(for the GyPSI™ PLB Model only)

Manufacturer	Model	Notes	Y2K and EOW Compliant
B&G	Network LCD Plotter / DGPS	*	Yes
B&G	Network LCD Plotter / GPS	*	Yes
B&G	Network GPS and DGPS	*	Yes
B&G	Network GPS	*	Yes
Data Marine	Chartlink D7000 XT	*	Yes
Data Marine	Chartlink D7000 XTC	*	Yes
Data Marine	Chartlink II D8000	*	Yes
Data Marine	Link D3500	*	Yes
Data Marine	Link D3500 LD	*	Yes
Furuno	GP1810F	*	Yes
Furuno	GP1810	*	Yes
Furuno	GP1610C	*	Yes
Furuno	GP1600F	*	Yes
Furuno	GP1600	*	Yes
Furuno	GP30	*	Yes
Furuno	GP35	*	Yes
Garmin	Etrex	*	Yes
Garmin	10	*	Yes
Garmin	12	*	Yes
Garmin	20	*	Yes
Garmin	25	*	Yes
Garmin	30	*	Yes
Garmin	31	*	Yes
Garmin	35	*	Yes
Garmin	36	*	Yes
Garmin	38	*	Yes
Garmin	40	*	Yes
Garmin	45	*	Yes
Garmin	48	*	Yes
Garmin	50	*	Yes
Garmin	75	*	Yes

Manufacturer	Model	Notes	*Y2K and EOW Compliant*
Garmin	85	*	Yes
Garmin	89	*	Yes
Garmin	90	*	Yes
Garmin	92	*	Yes
Garmin	95	*	Yes
Garmin	120	*	Yes
Garmin	126	*	Yes
Garmin	128	*	Yes
Garmin	130	*	Yes
Garmin	135	*	Yes
Garmin	175	*	Yes
Garmin	180	*	Yes
Garmin	185	*	Yes
Garmin	190	*	Yes
Garmin	195	*	Yes
Garmin	210	*	Yes
Garmin	GPSMAP 215	*	Yes
Garmin	220	*	Yes
Garmin	GPSMAP 225	*	Yes
Garmin	GPSMAP 230	*	Yes
Garmin	GPSMAP 235 SOUNDER	*	Yes
Garmin	120XL	*	Yes
Garmin	12XL	*	Yes
Garmin	45XL	*	Yes
Garmin	55AVD	*	Yes
Garmin	95XL	*	Yes
Garmin	GPS II	*	Yes
Garmin	GPS II+	*	Yes
Garmin	GPS III	*	Yes
Lowrance	GlobalMap 12	*	Yes
Lowrance	GlobalMap 1600	*	Yes
Lowrance	GlobalMap Sport	Some older versions of software may not output GGA, contact Manufacturer	Yes
Lowrance	LMS-160	*	Yes

Manufacturer	Model	Notes	Y2K and EOW Compliant
Magellan	GPS 2000 XL	*	Yes
Magellan	GPS 3000	*	Yes
Magellan	GPS 3000 XL	*	Yes
Magellan	GPS 4000	*	Yes
Magellan	GPS 4000XL	*	Yes
Magellan	Meridian XL	*	Yes
Magellan	Trailblazer	*	Yes
Magellan	Trailblazer XL	*	Yes
Magellan	White Meridian	*	Yes
NorthStar	941X	*	Yes
NorthStar	951X	*	Yes
NorthStar	961X	*	Yes
Raytheon	Autohelm ST50 Plus GPS	*	Yes
Raytheon	GPS-11	*	Yes
Raytheon	HSB Chart Plotter	*	Yes
Raytheon	NavCenter 600	*	Unit will display wrong time and date after Y2K. Send unit to manufacturer for upgrade
Raytheon	Raychart 620	*	Unit will display wrong time and date after Y2K. Send unit to manufacturer for upgrade
Raytheon	RC-520	*	Yes
Raytheon	RL-70RC	*	Yes
Si-Tex	DGPS-11	*	Yes
Si-Tex	GPS-1	*	Yes
Si-Tex	GPS-10	*	Yes
Si-Tex	GPS-10A	*	Yes
Si-Tex	GPS-4A	*	Yes
Si-Tex	GPS-5	*	Yes
Si-Tex	GPS-6	*	Yes
Si-Tex	GPS-7	*	Yes
Si-Tex	GPS-77P	*	Yes
Si-Tex	GPS-8	*	Yes
Si-Tex	GPS-88P	*	Yes

Manufacturer	**Model**	**Notes**	Y2K and EOW Compliant
Si-Tex	GPS-9	*	Yes
Si-Tex	GPS-99P	*	Yes
Si-Tex	GPS-9D	*	Yes
Si-Tex	HG-7	*	Yes
Si-Tex	SBR-90	*	Yes
Si-Tex	SBR-91	*	Yes
Trimble	4000DSi	*	Firmware must be upgraded to V7.19 to comply
Trimble	4000RSi	*	Users of Firmware V7.15 - V7.18 must upgrade to V7.19. Users of V7.28 must upgrade to V7.29. Users of V7.29 are fully compliant
Trimble	7400MSi	*	Yes
Trimble	MS750	*	Yes
Trimble	Navgraphic XL	*	N/A - No Date Output
Trimble	NavMariner DGPS	*	Yes
Trimble	NavTrac GPS	*	Version 2.09 is compliant. Earlier versions are not being tested
Trimble	NT200	*	Yes
Trimble	NT200D	*	Yes
Trimble	NT300D	*	Yes
Trimble	DSM	*	Yes for versions 1.10 and later
Trimble	NT100	*	Yes

GPS units compatible with ACR Beacons based on vendor information
(*) indicates that unit complies with ACR requirements

KNOWN COMPATIBLE GPS RECEIVERS
FIGURE 4

SECTION 2 - OPERATION

2.1 GENERAL

2.1.1 The 406 **PLB** and GyPSI™ 406 **PLB** Beacon Models are designed to be manually deployed and activated.

2.1.2 The GyPSI™ 406 **PLB** Beacon can accept NMEA 0183 GPS Data *(format GGA 1.5 and above)* through it's I/R interface. Data is updated every 20 minutes once an initial position is acquired.

2.1.3 The GyPSI™ 406 **PLB** is also designed to allow the user to perform periodic testing and confirmation of GPS connection and downloaded coordinates.

2.1.4 The GyPSI™ 406 **PLB** checks for a valid GPS interface connector approximately every 2 seconds if no current valid data exists.

2.1.5 The GyPSI™ 406 **PLB** can be forced to update its GPS data by initiating the self test function.

2.1.6 The GyPSI™ 406 **PLB** will hold the last GPS coordinates in memory until unit is activated. After deactivating unit, GPS data is returned to default.

2.2 406 PLB AND GyPSI™ 406 PLB OPERATING INSTRUCTIONS

2.2.1 Activation

Unfold Antenna from around unit and move Antenna to a vertical position (*See Figure 6*) Lift Switch to "ON" position by lifting up and sliding to the right then down to "ON" to activate the **PLB**. "ON" position indicated by "▌" on the face of the switch. Your **PLB** comes with a Breakaway tab on the "ON" Position to keep from accidental turn-on. PUSH SWITCH down to break TAB. Unit will beep and the RED LED will begin to flash once approximately every 20 seconds. Unit will send Rescue message approx. every 50 seconds and will beep after the message has been sent. Keep the **PLB** with you at all times.

2.2.2 Deactivation

The **PLB** can be deactivated by turning the switch to "OFF" position.

If the beacon continues to operate after it has been deactivated, remove the two screws at the bottom of the unit, and unplug the battery to disable the unit. Return it to a service center for repair.

2.2.3 Self Test

The **PLB** self test is initiated by lifting the switch at the top of the unit to a vertical position momentarily and releasing it back to the "OFF" position. Switch is spring loaded to return to the "OFF" position.

Note: "Off" position indicated by an "O" on switch face "ON" by "▌", on the face of the switch.

Upon lifting the switch, a very short yellow flash will indicate self test has been initiated.

Sequence of Tests

1. Check Data I/O ..... Beep & flash yellow LED if pass
   ..... Stop if failed

2. Check 406 MHz Synthesizer
   ..... Beep & flash yellow LED if pass
   ..... Stop if failed

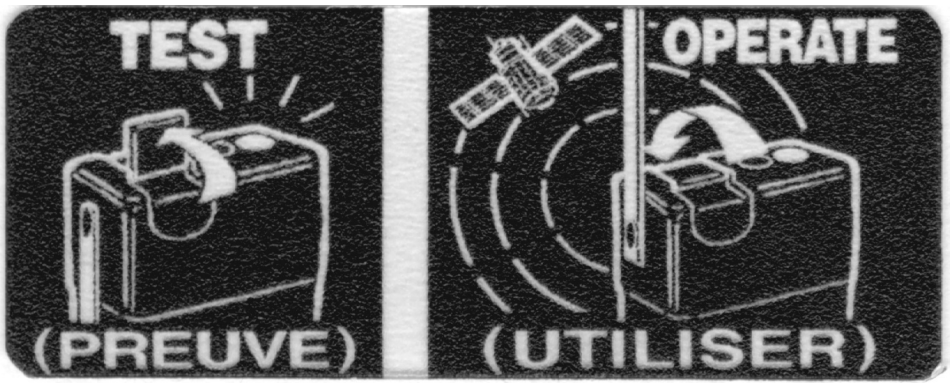
3. Check RF Power/Battery..... Beep & flash yellow LED if pass
   ..... Stop if failed

4. Unit turns on green LED to indicate Successful Test.

5. On the GyPSI™ 406 **PLB** approximately 2 seconds after green LED flash, unit will flash amber LED and beep if valid external GPS data has been received.
   *A successful test result is indicated by three beeps, three yellow flashes then the green LED flashes. If GPS data has been loaded into the **PLB**, an additional yellow flash & beep will occur after the green LED flashes.*

NOTE: The homing beacon at 121.5 MHz is inhibited during self test.

It is strongly recommended to test the **PLB** on a quarterly basis.



SELF TEST
FIGURE 5

OPERATING POSITION
FIGURE 6

SECTION 3 - GYPSI™ 406 PLB EXTERNAL GPS I/R ADAPTER

3.1 GENERAL

The GyPSI™ 406 **PLB** comes with a GPS cable Plug Adapter that can be interfaced to your GPS receiver to input actual GPS data into your beacon. This extra data can help improve reaction time to your position in the event of an emergency. This data is particularly helpful when the GEOSAR Satellite system picks up the Distress Alert.

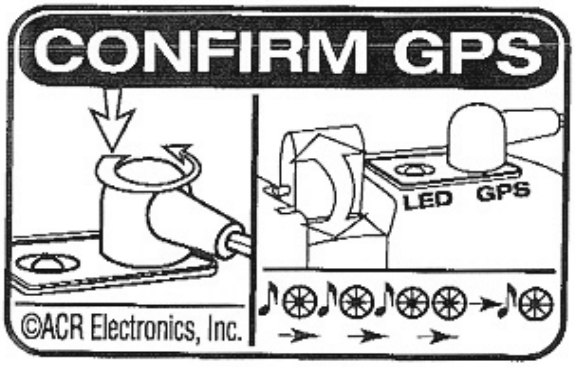
3.2 GPS ADAPTER

3.2.1 Connecting:

Your External GPS I/R cable attaches to your **PLB** and the GPS receiver, forming a data transfer link (like a printer cable). The cable plugs into the top of the unit, into the socket labeled GPS. The other end has two wires that should be connected to the GPS Receiver's Data/Power Cable. Consult your GPS Manual for wire identification for connections.

The Data/Power cable for your GPS receiver typically has connections for an external power source and data output.

The External GPS adapter supplied with your GyPSI™ 406 **PLB** has two wires that are polarized. The wire with the stripe on it is the + Data lead and should be connected to the + Data lead of your GPS Data/Power connector. The other lead with no stripe is the - Data lead and should be connected to the - Data lead of your GPS Data/Power Cable.



GPS ADAPER ILLUSTRATION
FIGURE 7

3.2.2 Setup:

The Data format your **PLB** will be accepting is the NMEA 0183, (GGA sentence). This is a common standard for GPS receivers. Your GPS receiver needs to be set to this protocol for proper data transfer. See Figure 4 for known compatible GPS receivers. Consult your GPS manual for proper format setting.

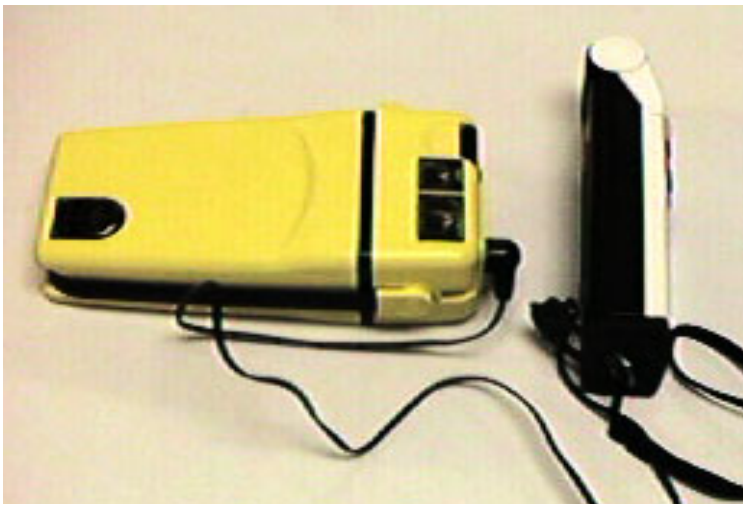
3.2.3 Testing:

Plug the Adapter into the top of the **PLB** into the socket labeled GPS.
Ensure your GPS has acquired a valid position. Momentarily lift the "ON/OFF" switch to the test position and stand-by. The **PLB** will go through its self test routine and approx. 2 seconds after the green LED the unit will beep once and Yellow LED will flash to indicate that valid GPS data has been transferred into your **PLB**.

When connected to a GPS receiver, your **PLB** will automatically update your position, even when in the "OFF" mode every 20 minutes.

When you activate the self test check, your **PLB** will start to look for valid GPS data and update accordingly.

Once data has been loaded into your **PLB** it will remain there until the unit is activated to the "ON" mode.



EXTERNAL GPS I/R CABLE
FIGURE 8

3.2.4 Position data set to default:

GPS data will be set back to default once the beacon is turned OFF. During the self test burst, default GPS data is transmitted even if GPS data is in memory.

4.0 MAINTENANCE

4.1 Carefully inspect the **PLB** case for any visible cracks. Cracks may admit moisture which could falsely activate the beacon or otherwise cause a malfunction. Any cracking observed should immediately be referred to ACR or nearest distributor for evaluation, (1-800-432-0227 Ext. 169) *toll free in the USA.*

4.2 The battery must be replaced by the date indicated on the beacon. At each inspection, check the time remaining until replacement is required.

NOTE: There are no user serviceable items inside the PLB. DO NOT OPEN THE PLB UNLESS TO DISABLE IN CASE OF FAULTY ACTIVATION. Refer all long life battery replacement and other internal PLB service to a factory authorized service center. For the nearest location of a factory authorized service center, call 1-800-432-0227 Ext. 169 (*toll free in the USA*) or +1 (954) 981-3333, Ext. 169.

It is strongly recommended to test the **PLB** on a quarterly basis.

5.0 FREQUENTLY ASKED QUESTIONS

Q. How do I download position data from my GPS to my beacon?

A. You must have NMEA 0183 output ready GPS unit and a GPS interface cable. The NMEA 0183 optical interface connector supplied with your ACR beacon must be connected to the

GPS interface cable using the wiring diagram information supplied by ACR and the GPS unit manufacturer. Turn on your GPS unit and allow it to acquire the necessary satellites. Make sure the output is set to NMEA 0183 with the GGA sentence configured if necessary. Connect the NMEA 0183 interface cable to the GPS unit and the ACR beacon. The ACR beacon "wakes up" every few seconds. As soon as it detects the presence of a valid data source it will initiate a data down load.

Q. How long does it take to down load position coordinates from my GPS to my beacon?

A. Upon connection with a properly operating and fully acquired GPS unit, the ACR beacon will take less than four minutes to synchronize and download coordinates. Subsequent coordinate updates occur every 20 minutes. These subsequent position updates will take from a few seconds to no more than 20 seconds to complete. If the interface cable is disconnected you may need to wait for up to four minutes for the GPS and the beacon data interchange to synchronize again.

Q. How does the GPS data get from my GPS to the beacon?

A. The GPS unit transmits data as electrical energy through the GPS interface cable to the ACR optical interfacing connector. The ACR optical interfacing connector has an infrared LED and sensor located in it. The electrical energy supplied by the GPS unit is converted to infrared light in the ACR optical interfacing plug. Data from the GPS unit is transmitted via infrared light to the beacon through the translucent beacon top cap or lens when the ACR optical interface plug is properly engaged. The beacon has an infrared detector that decodes the light pulses. ACR uses an optical interface design to eliminate the potential for leaks and corrosion common to mechanically interfacing devices.

Q. How can I test my beacon to see if it has acquired GPS data?

A. Lift the switch to the test position, making sure not to break the tab. If the beacon has acquired GPS data there will be a beep and LED flash within 4 seconds after the self-test has completed.

Q. Does my GPS unit have to be set up in a special way to transmit position coordinates via the NMEA 0183 interface?

A. For the GPS to transmit data make sure the NMEA 0183 output is turned on and the GGA NMEA sentence is selected or turned on. Consult your GPS user's manual for information on configuring the NMEA output.

Q. Does my beacon need any special set up to accept GPS data?

A. You do not have to do anything special to the beacon. If it is hooked to a valid data source, that has been properly set up to deliver NMEA format with the GGA sentence, it will automatically attempt to download the data and form an emergency message that includes the position data.

Q. What is the maximum length my GPS cable can be?

A. ACR Electronics recommends a maximum length of 400 feet using 24 AWG wire. Contact your GPS owner's manual for more detailed information.

Q. What happens if I plug the GPS into the beacon first, without waiting for it to acquire satellites?

A. The beacon will function normally, but will not store GPS coordinates. The beacon will continue to look for satellites and as soon as the GPS has acquired satellites the data will be transferred to the beacon.

Q. How long does the beacon hold data in memory?

A. The beacon retains GPS data until one of the following conditions happens:
1. The battery is disconnected.
2. The beacon is placed in the on mode and then returned to the off position.

Q. How much power is needed to run the IR LED on the GPS cable?

A. The minimum power needed is 3.3V_{DC} and 2mA.

Q. What if I already have other devices hooked up to my NMEA 0183 output cable, can I still splice my PLB GPS cable to the NMEA 0183 output cable?

A. YES – As long as you have enough current to supply 2mA to the beacon. Most GPS are capable of supporting multiple devices on the NMEA interface.

6.0 REGISTRATION

6.1 It is mandatory that this **PLB** be registered with National Authorization in your country. The 406 **PLB** and GyPSI™ 406 **PLB** have been programmed with a unique identification number or code which is broadcast on 406 MHz. Registration with the appropriate national authority provides the Search and Rescue Authority with important information which will speed up the rescue operation and minimize false alarms.

6.2 To register this **PLB**, simply fill out and mail the provided form in the enclosed pre-addressed envelope.

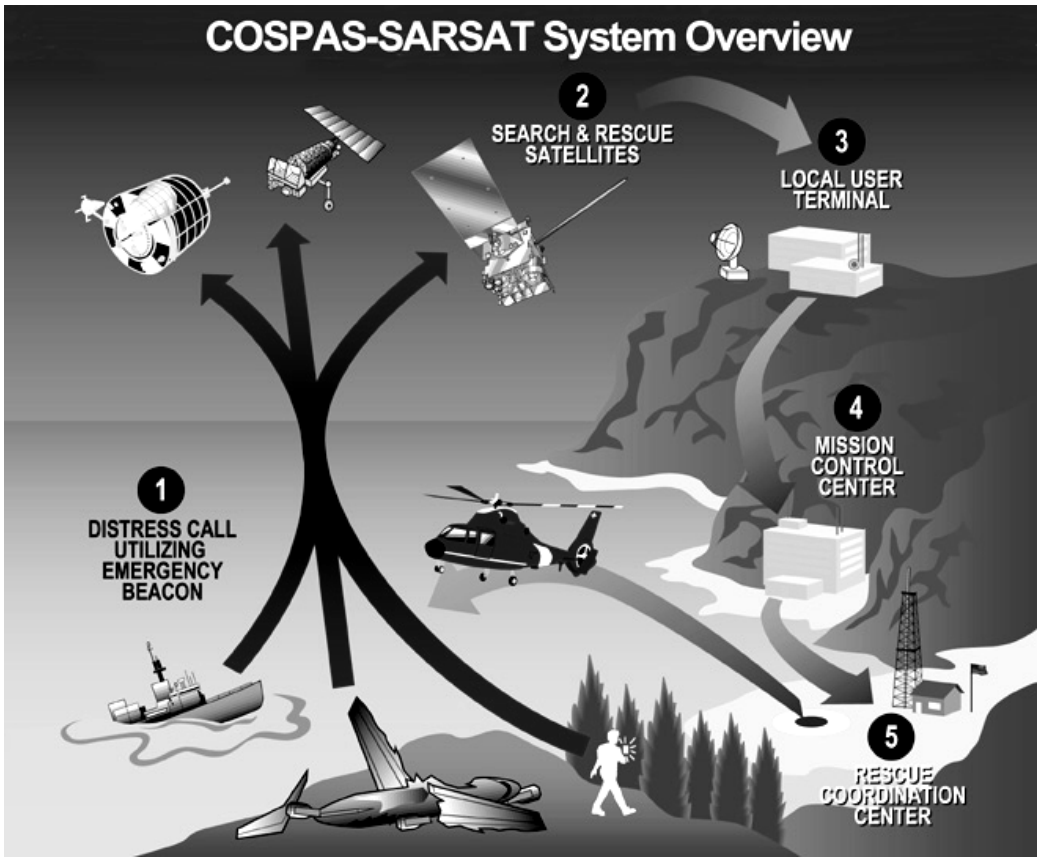
7.0 FALSE ALARMS

7.1 Should there be, an inadvertent activation or false alarm, it must be reported to the nearest search and rescue authorities. The information that should be reported includes the satellite **PLB** Unique Identifier Number (UIN); date, time, duration, and cause of activation; and the location at the time of activation. Information is located on the back label.

7.2 Contact the appropriate national authority to report false alarms.

In the United States:	Atlantic Ocean / Gulf of Mexico USCG Atlantic Area Command (757) 398-6390
	Pacific Ocean USCG Pacific Area Command (510) 437-3700
	USCG Headquarter Command Center (800) 327-7233
In Canada:	NSS - (613) 992-6667

*****WARNING*****
THIS TRANSMITTER IS AUTHORIZED FOR USE ONLY DURING SITUATIONS OF GRAVE AND IMMINENT DANGER, WHEN ALL OTHER MEANS OF SELF RESCUE HAVE BEEN EXHAUSTED



BASIC CONCEPT OF THE COSPAS-SARSAT SYSTEM
FIGURE 8